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Hydro-Fracking: Fact vs. Fiction

11/07/2012

Energy Daily

Boulder, CO (SPX) Nov 07, 2012

An important strategy is for concerned citizens, cities, and even oil companies to gather baseline data on water quality from wells before hydro-fracking begins.

In communities across the U.S., people are hearing more and more about a controversial oil and gas extraction technique called hydraulic fracturing - aka, hydro-fracking. Controversies pivot on some basic questions: Can hydro-fracking contaminate domestic wells? Does it cause earthquakes? How can we know? What can be done about these things if they are true? A wide range of researchers will address these and related critical questions at the GSA Annual Meeting.

"When people talk about contamination from hydraulic fracturing, for instance, they can mean a lot of different things," says hydrogeologist Harvey Cohen of S.S. Papadopulos and Associates in Bethesda, Maryland. "When it's what's happening near their homes, they can mean trucks, drilling machinery, noise."

These activities can potentially lead to surface water or groundwater contamination if there are, for example, accidental fuel spills. People also worry about fracking fluids leaking into the aquifers they tap for domestic or municipal water.

On the other hand, when petroleum companies talk about risks to groundwater from hydro-fracking, they are often specifically referring to the process of injecting fluids into geologic units deep underground and fracturing the rock to free the oil and gas it contains, says Cohen.

This is a much smaller, much more isolated part of the whole hydraulic fracturing operation. It does not include the surface operations - or the re-injection of the fracking waste fluids at depth in other wells, which is itself another source of concern for many.

But all of these concerns can be addressed, says Cohen, who will be presenting his talk on groundwater contamination and fracking.

For instance, it has been proposed that drillers put non-toxic chemical tracers into their fracking fluids so that if a nearby domestic well is contaminated, that tracer will show up in the well water. That would sort out whether the well is contaminated from the hydro-fracking operations or perhaps from some other source, like a leaking underground storage tank or surface contaminants getting into the groundwater.

"That would be the 100 percent confident solution," says Cohen of the tracers.

Another important strategy is for concerned citizens, cities, and even oil companies to gather baseline data on water quality from wells before hydro-fracking begins.

Baseline data would have been very helpful, for example, in the case of the Pavillion gas field the Wind River Formation of Wyoming, according to Cohen, because there are multiple potential sources of contaminants that have been found in domestic wells there.

The Pavillion field is just one of multiple sites now being studied by the U.S. Environmental Protection Agency (EPA) to learn about past and future effects of hydro-fracking on groundwater.

The same pre-fracking science approach is being taken in some areas to evaluate the seismic effects of disposing of fracking fluids by injecting them deep underground.

In Ohio and Texas, this disposal method has been the prime suspect in the recent activation of old, dormant faults that have generated clusters of low intensity earthquakes.

So in North Carolina, as well as other places where fracking has been proposed, some scientists are scrambling to gather as much pre-fracking seismic data as possible.

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America: 'The new Middle East' Washington Examiner - Online

11/06/2012

OpEd Contributor The Washington Examiner

Predictions of U.S. dominance in the world oil market are a stunning reversal from the grim energy forecasts of a few years ago. Headlines are trumpeting that the United States could soon surpass Saudi Arabia as the world's largest oil producer. Let that sink in for a moment.

After 40 years of hand-wringing over foreign energy dependence and oil disruptions, the Department of Energy reports that U.S. oil and other liquid hydrocarbon production, including biofuels, will reach an average of 11.4 million barrels per day next year -- just below Saudi Arabia's level of 11.6 million barrels. Citibank projects that U.S. production could climb to 13 million to 15 million barrels per day by 2020, making North America "the new Middle East."

These glowing reports can be credited to our truly unique, and American, system of private mineral rights, and to American ingenuity and the countless hours invested in developing the technologies used to improve oil and natural gas production. Horizontal drilling, seismic study innovations and hydraulic fracturing (known as "fracking") are producing more energy from old wells and unlocking oil and natural gas from hard-rock formations, including the Marcellus and Utica shales, in the Rust Belt.

IHS Cambridge Energy Research Associates, or IHS CERA, says the shale drilling boom supports nearly 1.8 million U.S. jobs today and will create an additional 1.3 million jobs by 2020.

But there remains one great danger -- new policies that could hinder U.S. oil and gas production in coming months. Unfounded claims that stoke fear of fracking, overreaching regulations, and a questionable water-quality study by the Environmental Protection Agency threaten to turn the bonanza into a bust if left unchallenged.

In their effort to find a link between fracturing and ground water contamination, EPA regulators tested water in three locations: Dimock, Pa., where they found no connection between fracturing and the well water troubles featured in the documentary "Gasland"; Parker County, Texas, where the EPA quietly dropped a water contamination case against a drilling company; and Pavillion, Wyo., where the agency hopes to bolster its highly criticized 2011 study.

In December 2011, the EPA reported that two ground water monitoring wells found "likely impact to ground water that can be explained by hydraulic fracturing." In new tests, the EPA says its results are "generally consistent" with the 2011 findings, but that's because the agency used the same flawed methodology. A separate, scientifically sound study by the United States Geological Survey (USGS) found no link between Pavillion's ground water and fracking.

The EPA's study is important because the agency is trying to build a case for new federal regulations that could delay or even stop hydraulic fracturing. According to a new minority report from the Senate Environment and Public Works Committee, the EPA is expected to deliver on its promise to "crucify" oil and gas companies in 2013.

The Groundwater Protection Council, which represents state water regulators, anticipated the federal government's power grab and issued a report in 2009 that upheld the efficacy of state regulations. It also warned that enactment of federal fracturing regulations would be costly, duplicative "and ultimately ineffective because such regulations would be too far removed from field operations."

New layers of rules could endanger America's best chance for economic growth and energy security. They also could

create an obstacle to increased prosperity in the region. The Ohio Chamber of Commerce says the state is likely "to see thousands of new jobs and millions in new investment," if the IHS CERA projection is correct. Only the government can put that in jeopardy.

Keith Mauck is publisher of GoMarcellusShale.com, a site dedicated to discussing the Utica and Marcellus shale plays.

Vexed question of hydraulic fracking Utility Products Magazine

11/06/2012

Shale gas is hot property. The world appears to be awash with the stuff though quite how large the resource is is possibly anybody's guess. At best, current estimates are crude . . . no pun intended.

Yes, "unconventional" shale gas is fast becoming the pre-eminent conventional.

Cock of the walk for the time being is the US, where shale gas production has rocketed over the past six years - though it has been produced in small quantities for more than 150 years - it seems that China is poised for lift-off while, in Europe, the picture is far from clear and progress is slow.

Concentrating on the US, shale gas now makes up more or less 25% of domestic production, helping to offset a fall in natural gas supplies coming from conventional wells. Shale production could double or triple over the next 25 years, according to the UK Energy Information Administration, and it could make up nearly half of US production by 2035. That said, in January, the EIA downgraded its shale gas estimates in its Annual Energy Outlook due to a rethink of "unproved reserves".

EIA's new estimate for how much gas-bearing shales might yield was slashed back to 482trillion cu ft versus the 2011 estimate of 827TCF.

The most drastic change was for the Marcellus shale.

The EIA used the new analysis from the US Geological Survey (USGS), along with the known histories of production from wells in the area, to draw up the 2012 revision.

The 2011 estimate for the Marcellus was 410TCF. But this included unproved reserves. The new estimate is 141TCF. However, the caveat is that the Marcellus is a new play and it will take time for companies to get to grips with its true potential. The EIA also estimates unproved technically recoverable resources of 16TCF for the emerging Utica shale, which sits beneath the Marcellus and is relatively under-explored.

However, not everyone agrees with the EIA's figures.

Regardless of whatever the overall shale gas resource in the US turns out to be, the industry faces an uphill challenge with regard to the vexed question of hydraulic fracking, because of widespread concern regarding the massive use of water resources and the alleged potential for pollution of groundwater . . . the aquifers upon which many farmers are dependent for irrigation water and communities for their water supplies.

Unfortunately, the industry's defence is not best served by a spat between the Environmental Protection agency (EPA) and the USGS, which is claiming that the former has done its water sample analysis the wrong way.

This row is important as it could wash across to Europe where the industry is still putative and where regulation is rudimentary at best and somewhat ad-hoc.

Focal point of the dispute is a groundwater study by the US's EPA which focuses on the impact of hydraulic fracking near a town called Pavillion in the state of Wyoming. The EPA claims there has been an impact, but the USGS says that the agency's methodology is basically wrong.

USGS claims that flaws identified in the EPA's approach include improper monitoring well construction and development; possible cross-contamination of groundwater during EPA monitoring well drilling, development, and sampling; and misrepresentation of monitoring well depths in relation to drinking water well depths in the area.

Indeed. USGS has claimed that it was unable to sample one of EPA's deep monitor wells (MW-02) because the well could not yield enough water to produce a representative groundwater sample which is due to improper well construction/development.

Geological Survey insists in two new reports that there is a need "for transparent peer-reviewed research and the use of proven and tested scientific practices".

FrackingFracking: fact vs. fiction Homeland Security Newswire

11/06/2012

In communities across the United States, people are hearing more and more about a controversial oil and gas extraction technique called hydraulic fracturing — aka, hydro-fracking; controversies pivot on some basic questions: Can hydro-fracking contaminate domestic wells? Does it cause earthquakes? How can we know? What can be done about these things if they are true? Experts making presentations at the Geological Society of America (GSA) meeting this week in Charlotte, North Carolina, will address these and related critical questions

Schematic graphic of hydrofracking technology // Source: uconn.edu

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All of these concerns, however, can be addressed, says Cohen, who will be presenting his talk on groundwater contamination and fracking on the morning of Wednesday, 7 November. For instance, it has been proposed that drillers put non-toxic chemical tracers into their fracking fluids so that if a nearby domestic well is contaminated, that tracer will show up in the well water. That would sort out whether the well is contaminated from the hydro-fracking operations or perhaps from some other source, like a leaking underground storage tank or surface contaminants getting into the groundwater.

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Interesting hydro-fracking presentations and sessions will run throughout the meeting, include the following:

Monday

Local and Regional Water Supply Planning to Evaluate and Manage Hydrofracking

Tuesday

Overview of the potential risks of shale gas development and hydrofracturing on water resources in the United States

Finding frack facts: The literature of hydraulic fracturing

Wednesday

Groundwater contamination from hydraulic fracturing - How will we know?

History and development of effective regulation of hydraulic fracturing: the genesis of Colorado rule 205A

Pre-hydrofracking regional assessment of central Carolina seismicity

Insights on induced seismicity in Ohio from the Youngstown M4.0 earthquak